

STAT

Relays Made in USSR Industry

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Promyshlennaya Energetika, 5, 6

Moscow, May, June 1951

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RELAYS MADE IN USSR INDUSTRY

RELAYS MADE BY THE LENINGRAD ELEKTROSILA PLANT, MINISTRY OF
 ELECTRICAL INDUSTRY--Moscow, Promyshlennaya Energetika, May 1951

ERE - 100 Series Electromagnetic direct current relays. Used
 as time, voltage, current, intermediate and, most often, as
 accelerating relays (with voltage coil) in automatic control
 circuits of electric drives.

Current coils are made in 1.5; 2.5; 5; 10; ^{*}20; 40; 80; 150;
 300 and 600 ampere sizes, pressure coils in 24, 55, 110, and 220
 volts. ^(range) The time lag is from 0.25 to 1 second. The relays are
 grouped as follows according to the number of contacts: 1 normally
 open (ERE - 101); 1 normally closed (ERE - 102); 2 normally open
 (ERE - 103); 2 normally closed (ERE - 104); 1 normally open and
 1 normally closed (ERE - 105). Maximum permissible currents of
 bridge contacts: continuous duty in 50 cycles direct and alter-
 nating current circuits, 20 amperes; short time duty in energizing
 the coils of electromagnetic devices, 100 amperes; interrupting
 the current of alternating current induction circuits, 20 amperes
 (to 220 volts), and of direct current induction circuits, 2.5
 amperes (110 volts) and 1 ampere (220 volts).

Overall installation dimensions are as follows: (in milli-
 meters) panels 250x160, distances between mounting centers of
 panel 200 and 110, height 135 plus 25 (thickness of panel) plus
 25 (length of current carrying lead). Weight 3.7 kilograms
 (ERE - 101, ERE - 102) and 3.8 kilograms (ERE - 103, ERE - 104,
 ERE - 105).

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ERE - 180 Series Electromagnetic direct current relays. Used mainly as timerelays (with a time lag of 1.5 to 5 seconds) in automatic control circuits of electric drives. Coils (voltage) are made in the following sizes: 24, 55, 110 and 220 volts. The relays are grouped as follows according to the number of contacts: 1 normally open (ERE - 181), 1 normally closed (ERE - 182), 2 normally open (ERE - 183), 2 normally closed (ERE - 184), 1 normally open and 1 normally closed (ERE - 185). Maximum permissible currents of bridge contacts are the same as for relay ERE - 100 (see above).

Overall installation dimensions are as follows: (in millimeters)
panels 250x160, distances between mounting centers of panel 200 and 110, height 160 plus 25 (thickness of panel) plus 25 (length of current carrying lead). Weight 6.2 kilograms (ERE - 181, ERE - 182) and 6.3 kilograms (ERE - 183, ERE - 184, ERE - 185).

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ERE - 191 Series ^{alternating} Electromagnetic ^{current} relay. Used as accelerating relays, sliding relays, or load relays in automatic control circuits for starting induction motors with a phase rotor. The pick-up current coil of the relay is made only in 5 amperes, 50 cycles. The relay has three coils, each of which is fitted to its core and joined respectively to the three phases of the rotor or stator of the induction electric motor (when connected into a stator circuit, through current transformers).

The pick-up current is from 0.5 to 1.4 times the rated current. The ratio ^{current} of the drop-out current to the pick-up ^{current} is from 0.3 to 0.85 (depending on adjustment to pick-up current). The time for picking up the current is 0.1 second and for dropping the current is 0.05 second. Maximum permissible contact currents are as follows: continuous (in direct and alternating current circuits) 20 amperes, breaking current in the direct current induction circuits from 0.2 to 0.45 amperes (for 110 volts) and 0.12 to 0.35 amperes (for 220 volts).

Overall installation dimensions are as follows: (in millimeters) panels 280x280, distance between mounting centers of panel 240 and 240, height 150 plus 25 (thickness of panel) plus 25 (length of current carrying lead).

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ERE - 2111 Series Electromagnetic alternating current maximum ¹⁰ relays. Used as primary single-phase maximum current relays for protection against overload in automatic control circuits of alternating current electric ~~drives~~ ^{motors}. Relay coils are made in 5; 10; 20; 40; 80; 150; 300 and 600 amperes ^g sizes. The relay can be set to disconnect instantaneously for currents of 1.1 to 3.5 times the rated current. The return coefficient (the ratio of the drop-out current to the pick-up current) reaches 0.3. The relays are made as follows: ERE - 2111/01 (1 normally closed contact) and ERE - 2111/10 (1 normally open contact). Maximum permissible contact currents: (a) in direct and alternating current circuits - prolonged, 10 amperes; cut-in, 20 amperes; (b) disconnecting - in alternating current circuits up to 380 volts, 20 amperes; in induction direct current circuits 2.5 amperes (for 110 volts) and 2 amperes (for 220 volts).

Overall installation dimensions are the same as for relay ERE - 100 (see above). Weight 1.7 kilograms.

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RTs. Centrifugal relay (radial). Developed for rated rotation speed from 865 to 90 revolutions per minute. It operates only when the ^{rotation} speed of the drive is increased. Range of adjustment is 110 to 115 percent of the rated rotation speed.

RTsS. Series Centrifugal relay (face). The types of relays made are RTsS - 1000 and RTsS - 1500 for rated rotation speeds of 1000, and 1500 revolutions per minute. The range of adjustment is the same as for the RTs relay.

RD - 10 Pressure relay. Made only as units with the machines of the plant.

RSM - 21 - 1. Magnetic flow relays. Made only as units with the machines of the plant.

RUP - 20. Float level relay. Made only as units with the machines of the plant.

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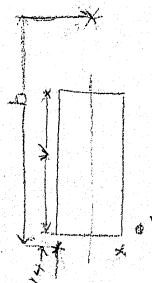
RELAYS MADE BY THE UL'YANOVSK PLANT, MINISTRY OF ELECTRICAL
INDUSTRY-- Moscow, Promyshlennaya Energetika, May 52

EP - 41A Series Electromagnetic alternating current primary
relays. Used as intermediate relays in 50 cycle alternating
current control and protective circuits up to 500 volts. Relay
coils are made in 24; 48; 127; 380 and 500 volts sizes. The relays
are grouped as follows according to the number of bridge contacts:
2 normally open and 1 normally closed (EP - 41/21A); 3 normally
open (EP - 41/30A); 3 normally open and 3 normally closed (EP -
41/33A); 4 normally open and 2 normally closed (EP - 41/42A);
6 normally open (EP - 41/60A).

Breaking capacity of the contacts in the induction circuits is
as follows:

Type of current	Direct	Alternating
Voltage, <i>v_{alt}</i>	110 220	220 380 500
Current, <i>amp_{res}</i>	4 2	30 20 15

Overall installation dimensions are as follows: (in milli-
meters) boards 90x250 (EP - 41/21A) or 90x330 (EP - 41/33A, EP - 41-42A,
EP - 41/60A), height 45 plus 15 (thickness of panel). The outline for
the openings used for mounting the panel is shown on the diagram
(distance - b is 225 millimeters for relays EP - 41/21A, EP - 41/30A
and 305 millimeters for relays EP - 41/33A, EP - 41/42A; distance
- v is 105 millimeters for relays EP - 41/21A, EP - 41/30A and 185
millimeters for relays EP - 41/33A, EP - 41/42A, EP - 41/60A).



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Should the panel be installed on noninsulated material it is necessary to place between the panel and the relay an insulating plate from 1 to 2 millimeters thick (laminated insulation, impregnated electrical cardboard, etc.) according to the size of the relay board or else to cut out holes on the panel as ~~is~~ shown on the diagram. Weight of the panel: 1.7 kgs. (EP - 41/21A, EP - 41/30A) and 2 kgs. (EP - 41/33A, EP - 41/42A, EP - 41/60A).

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ELECTRICAL EQUIPMENT

RELAYS MADE BY THE UL'YANOVSK PLANT, MINISTRY OF ELECTRICAL INDUSTRY
Moscow, Promyshlennaya Energetika, Jun 52

EP41-B. Electromagnetic alternating current relays, reduced in size in comparison with relay EP41-A. Intermediate relays designed for 50 cycle alternating current control and protective circuits up to 500 volts. Open, front connecting leads. Alternating current coils are made in 24, 48, 127, 220, 380 and 500 volt sizes.

They are made as follows according to the number of contacts:

3 normally open (EP41/30-B); 2 normally open 1 normally closed (type EP41/21-B); 1 normally open 2 normally closed (EP41/12-B); 6 normally open (EP41/60-B); 5 normally open 1 normally closed (EP 41/51-B); 4 normally open 2 normally closed (EP41/42-B); 3 normally open 3 normally closed (EP41/33-B).

The contacts of the relay ^{under} ~~are~~ continuous-intermittent ^{operation} ~~condition~~ ^{as follows} admit ^a 20 ampere load and disconnect the current ^(inductive load) for direct current circuits - 4 amperes (110 volts) and 1 ampere (220 volts); for alternating current circuits - 30 amperes (220 volts), 20 amperes (380 volts) and 15 amperes (500 volts).

Overall installation dimensions of the panel, in millimeters:
78x178 (three contact - EP41/30-B, EP41/21-B, EP41/12-B, EP41/03-B)
or 78x238 (six contact-EP41/60-B, EP41/51-B, EP41/42-B, EP41/33-B);
distance between mounting centers (4 openings with a diameter of 6 millimeters) corresponding to a height of 160 or 220 and a width of 60. Weight 1.1 kilogram (three contact) and 1.3 kilograms (six contact).

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RELAYS MADE BY THE TOCHELEKTROPRIBOR PLANT, MINISTRY OF ELECTRICAL
INDUSTRY - Promyshlennaya Energetika, Jun 52

RPT-100. Multiple contact intermediate alternating current relay,
of small size (60x35 mm, height 60 mm), not enclosed, without a
housing. For installation on a panel or for ~~the~~ attachment to
another device provided with brackets with openings for the mounting
of the relay. Weight 0.2 kilograms.

~~The relay~~ made for all standard ^{voltages} ~~loads~~ of 50 cycle alternating
currents up to and including 220 volts. ^{Operates} ~~They work~~ reliably ~~within~~
the range of 80 to 110 percent of the rated ^{voltage} ~~value~~. Power, ^{required} ~~used~~ by
the winding is 6 volt amperes ^{at} ~~of~~ the rated ^{voltage} ~~load~~. Maximum breaking
capacity of the contacts of the relay (four shiftings) is 60 watts;
direct current and 400 ^{volt amperes} ~~VA~~ alternating current (to 220 volts) with
inductance load. Relay contacts admit a continuous load of 5 amperes.
Operating time is 0.05 seconds. Life: 1 million operations.

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TR-200. Temperature relays. Range of temperature settings is from 25 to 200 degrees Centigrade ^(with a permissible error of plus or minus) ~~(allowing a tolerance of)~~ 5 degrees centigrade ^{when the} ~~for the changing of~~ controlled temperature ^(no changing no) ~~by~~ more than ^{0.5} ~~1~~ degrees centigrade per minute). One pair of normally closed contacts. The ^{breaking} ~~interrupting~~ power of the contacts is 22 watts for direct current ^{or} ~~and~~ 100 volt amperes for alternating current with voltage ^{is} up to 220 volts in an induction circuit. It is used for controlling temperatures of gaseous and liquid ^{mediums in} ~~devices with~~ signal or automatic circuits. Overall dimensions: (in millimeters) diameter of the sensitive element 18, diameter of the head 44, length 136. Weight of the relay 0.25 kilograms.

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RSI - 1000 ^{counting} Impulse relays designed for work in automatic circuits, for automatic connections or disconnections of electrical circuits after attaining a definite, previously set, number of impulses. Setting range is from 3 to 1,000 impulses.

Scale graduation - one impulse.

Greater operating frequency is three impulses per second, the length of an impulse being not less than 0.16 second. Length of an impulse not more than ⁵ seconds; length of a pause being equal to the length of an impulse.

The relays are made in 127 and 220 volt alternating current sizes, and can be made for ~~the~~ direct current 110 and 220 volt sizes. Breaking capacity of the contacts (1 pair normally open) is 15 kilowatts with ~~a load of~~ ^{voltage up to} direct current 220 volts.

Overall dimensions: (in millimeters) height 180 (with the clamps ^{height is} of impulse circuits at the front connections 200), width 145, depth of the instrument 168 (to the panel; with current carrying leads to ^{depth is} the rear of the connections 210). Weight 3 kilograms.

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E-52. Time relays for electric ^{motors} drives. Time lag 1 to 60 seconds. Made in alternating current 220, 127 and 12 volt sizes. Two pairs of normally open and one pair of normally closed contacts (contacts operate on one time lag). Breaking capacity of contacts - to 100 watts at 220 volt direct current; maximum permissible current is 5 amperes.

Overall dimensions, (in millimeters): height 145 (with clamps for the front connections, ^{height} 165), width 180 (with side clamps ^{width is} 200), depth of instrument 140 (to the panel; with current carrying lead at the rear connection ^{depth is} 185). Weight 3 kilograms.

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RVT - 1200. Time relays of multi-circuit electric motors. Time lag from 1 to 20 minutes. Made in alternating current 220, 127 and 12 volt sizes. Contacts normally open: five pairs with time lag and one pair without time lag. Time lag ^{is independently} regulated ~~separately~~ ^{for each} pair of contacts. ^(of contacts with a) Breaking capacity ~~for~~ ^(direct current circuit) 220 volt contacts with a time lag ^{is up to} ~~reaches~~ 100 watts, and without the time lag ^{up to} ~~reaches~~ 20 watts; maximum permissible current is respectively 10 and 5 amperes.

Overall dimensions, in millimeters: height 165 (with clamps for the front connections, ^{above and below, it is} ~~from top to bottom~~ 185), width 230, depth of the instrument 175 (to the panel). Weight 5 kilograms.

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RELAYS MADE BY THE MOSCOW TRANSFORMER PLANT, MINISTRY OF ELECTRICAL INDUSTRY

- Promyshlennaya Energetika, 6, Jun 52
PG-22. Gas relays. Mounted as a unit with power transformers.

Designed for protecting oil cooled power transformers from internal breakdown which cause gases to form or ^{from} ~~the~~ lowering of the level of oil in the transformer.

The relay is installed on the oil pipeline with a diameter of 2 or 3 inches, joining the transformer to the pit/tank. The mercury relay contacts can open or close ^{up to} ~~a~~ direct or alternating current circuits ^{or} ~~up to~~ 220 volts. Weight 9.5 to 10 kilograms.

The PG-22 type gas relay is also manufactured by the Riga Machine Repair Plant of ~~the~~ Latvenergo, Ministry of Electric Power Stations.

Latvian Regional Electric Power Administration

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RAB-2. Anode quick acting relays for grid protection of metallic mercury arc rectifiers in case of reverse ignition. Designed for operation with rated rectified voltage up to 3,300 volts. Made by the Uralelektroapparat Plant, Ministry of Electrical Industry and supplied as a unit with metallic mercury arc rectifiers.

RIS-El. Impulse signal relay. Made by the Elektropult Plant, Ministry of Electric Power Stations, ^{and} used for emergency and warning signaling in impulse circuits with sound warnings operated from a central point, and in other circuits. Technical data and overall dimensions of the RIS-El relay for direct current circuits of 110 and 220 volts are given in the periodical "Elektricheskiye Stantsii" (Electric Power Stations) (No. 7, 1948, p 60). These relays can be used on circuits of 24 -- 48 volts; ^(over use) for ^{the} resistance of ~~the~~ circuit ³ - 4 of the relay (figure 1 in the above mentioned periodical) ^{must be} ~~resistance~~ of 2,500 to 3,000 ohms, ~~must~~ ^{be used.}

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